

## Report - Finiq riverscape

### Green and blue infrastructures among the Finiq municipality rivers

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**Introduction** - The Municipality of Finiq is part of the District of Vlora. It is located 20 km from the city of Saranda, 7 km from the city of Delvina, 8 km from the shores of the Ionian Sea, and it shares a border with Greece. It consists of 5 administrative units: Livadhja, Finiq, Dhivri, Mesopotamia and Aliko. It has 58 villages under its administration among which the most important ones are the centers of the administrative units with the same name. According to municipal registers, the population of the municipality is 35,518 inhabitants or 10,103 families while according to the 2011 census, the population reaches 11,862 inhabitants.<sup>1</sup> From the ethnographic or anthropogeographic point of view, the Municipality of Finiq consists of three communities: Vurgu, consisting of plain villages; Rëza, consisting of mountain villages; and the intermediate hilly area consisting of villages like Sirakat, Livinë, Llazat, Gravë, Karroq.<sup>2</sup> The history of these areas is "written in the stones" of the old settlements of Phoeniciae, Butrint and in the religious buildings of Dhrovjan. These historical evidences speak of a glorious past of these areas, but today they are in a state of constant shrinkage<sup>3</sup>. All of it concentrates in a territory of 441.2 km<sup>2</sup>. Finiq Municipality spreads between two mountain ranges, one in the west dividing it from the Ionian Sea with an elevation of 100 – 600 meters above sea level, the

other one on the west dividing it from Dropull Municipality with an elevation of 800 – 1400 meters above sea level. Both mountain ranges are directed north-west. The terrain of the municipality is composed of 44% plain, located in the middle, 34% mountains and 22% hills. In this environmental complexity, the natural area spreads in 71% of the territory, especially in the east part of the municipality, agriculture area spreads in 24% of the territory, concentrating in the west part of the municipality. Agriculture and nature make up the predominant use of the territory of Finiq. On the other hand, the settlements spread only on 3% of the territory, but they are scattered in the whole municipality. Water and infrastructure make up only 1% of the territory each and connect the various settlements of the municipality together.<sup>4</sup> The District of Vlora faces a number of environmental issues that are also a reality for the Municipality of Finiq<sup>5</sup>. The District of Vlora faces a high pressure from urbanization and new development of touristic structures, which is especially true for the coastal ecosystem but not only. The settlements, with an emphasis on villages, are characterized by the absence of a wastewater management system and solid waste management system, which are important sources of pollution for the land and also for the water. The shrinkage of protected areas

is another relevant environmental issue not only for Vlora District but also for Finiq Municipality. The area of protected areas is changing to accommodate strategic public investments. In the case of the Butrint protected area (a Ramsar area<sup>6</sup> and also a UNESCO-protected area<sup>7</sup>), it is shrinking to accommodate the construction of a national airport. In the natural landscape deforestation is a very relevant issue since in the Finiq Municipality on 25% of the original forest remains<sup>8</sup>. For the rivers, the main threat is the illegal exploitation of the riverbeds but also the mismanagement of the river deltas.

For those reasons, in a context where the threat of climate change becomes more imminent every year, it is important to think about re-inventing the environmental systems of Finiq Municipality to promote a sustainable and resilient territory. Hence, it is important to understand what is the role of the environmental dimension in the bundle of problems affecting this municipality, both as strengths and weaknesses. What is the role of the environmental dimension in identity? How does it affect shrinkage of the settlements in Finiq? How does it contribute in isolation?

Through analyses and a common strategies, we aim to give practical

solutions toward building a more sustainable and resilient environment for Finiq Municipality. Re-inventing the environmental infrastructure of Finiq Municipality will revitalize the territory. Rivers connect the myriad environmental systems of the municipality together, making them the starting point of the proposed strategy by creating the Finiq Riverscape. By following the Bistrica River, it will be possible to illustrate the possible solutions to achieve this objective.

#### Methodology

The methodology employed in this study aims to provide analytical answers while simultaneously demonstrating that comparative analyses are the foundation for addressing identified problems, and that strategy is the tool for achieving comprehensive solutions. Below is the development of the defined steps for identifying environmental consequences of shrinking cities.

First step was to better understand the three main problems (identity, shrinking and isolation) that affect the municipality of Finiq from an environmental perspective. The land cover of the municipality was essential for this process. Through this component it was possible to investigate how the territory was being used by people, which

1 / according to the civil registry in the municipality

2 / See (Porta Vendore, 2011)

3 / See (Boardman & Lewis, 1994)

4 / See (DEA Studio, 2021)

5 / See (Nika & Skëndaj, 2021)

6 / A Ramsar site is a wetland area of international importance designated under the Ramsar Convention, also known as "The Convention on Wetlands." This treaty, established in Ramsar, Iran, on 2 February 1971 under UNESCO auspices, came into force on 21 December 1975. It focuses on national and international efforts to conserve wetlands and promote their sustainable use, particularly for waterfowl habitat preservation

7 / A UNESCO area is a site recognized and legally protected under an international convention administered by UNESCO, signifying its outstanding cultural, historical, scientific, or other significance

8 / See (Rusi, 2021)

shapes a macro identity in various parts of the territory, as we will see in the main findings. By analyzing the connectivity of the different habitats inside the territory and by identifying the potential barriers it was possible to understand better the isolation phenomena in the environmental context. Pollution can be seen as a contributing factor in the shrinking problem. Because of the absence of quantitative data regarding the amount and types of pollution at the municipality level, the mapping process of this problem was done by researching relevant documents that generally speak about the issue of pollution.

The second step was developing a common strategy at the municipal level based on the findings of the analysis. The strategy focuses on the river networks which connect the environmental systems together.

The third step was choosing three case

studies which represent the thematic areas identified by the analysis. At this scale, through an abacus of potential implementations, it was possible to illustrate the solutions that can be implemented in each context.

#### Analyses and main findings

According to the hypothesis and research question stated above, the aim of this study is to explore urban shrinkage processes, how they have occurred, and why they are expanding. To understand this, we have selected three urban processes: preservation or lack thereof of Identity, determination of Isolation, and the Shrinking process, related to previous steps. Due to the complexity of the research, it is required to justify the effects of Shrinking as a consequence of identity loss and isolation.

**Identity:** At the municipal level, by analyzing how the territory of Finiq

was being used by people and how the different environmental ecosystems spread in it, four thematic areas were identified, which shape the identity of Finiq. In the east part of the municipality, we find a strong Natural Identity. It is characterized by forests, isolated small settlements and wide mountainous pastures. Inside this natural landscape there are a number of natural monuments, mostly unknown to the general public and underestimated from a touristic point of view. This part of the territory is also abundant with medicinal and aromatic herbs that can provide an important income for the villages in the area. The main issue that this thematic area faces is deforestation, where according to the Strategic Environmental Assessment of Finiq Municipality, only 25% of the original forest area remains today in the municipality (DEA Studio, 2021).

In the western part of the territory, we find a strong Agricultural Identity. Agricultural land spreads in 24% of Finiq Municipality

and employs approximately 22.9% of the population<sup>9</sup>. It is characterized by high-quality lands that produce high-quality local products. Because of the law no. 7501, the agricultural land is very fragmented, with a degraded drainage and irrigation system. One of the main risks that this area faces is floods, which are caused by heavy rain season, the overflowing of the rivers and the non-functional drainage and irrigation system. In the middle of the municipality, we find a Hybrid Identity. In this thematic area, natural land and agricultural land clash with each other. Also, this is where the most important settlements in the territory of the municipality are. Hence, there is evident pressure from agricultural and urban land to expand further, potentially harming the natural assets of the municipality, if it is not done and managed in a sustainable way. This area has the potential to patch the territory together by finding an equilibrium between expansion and preservation,

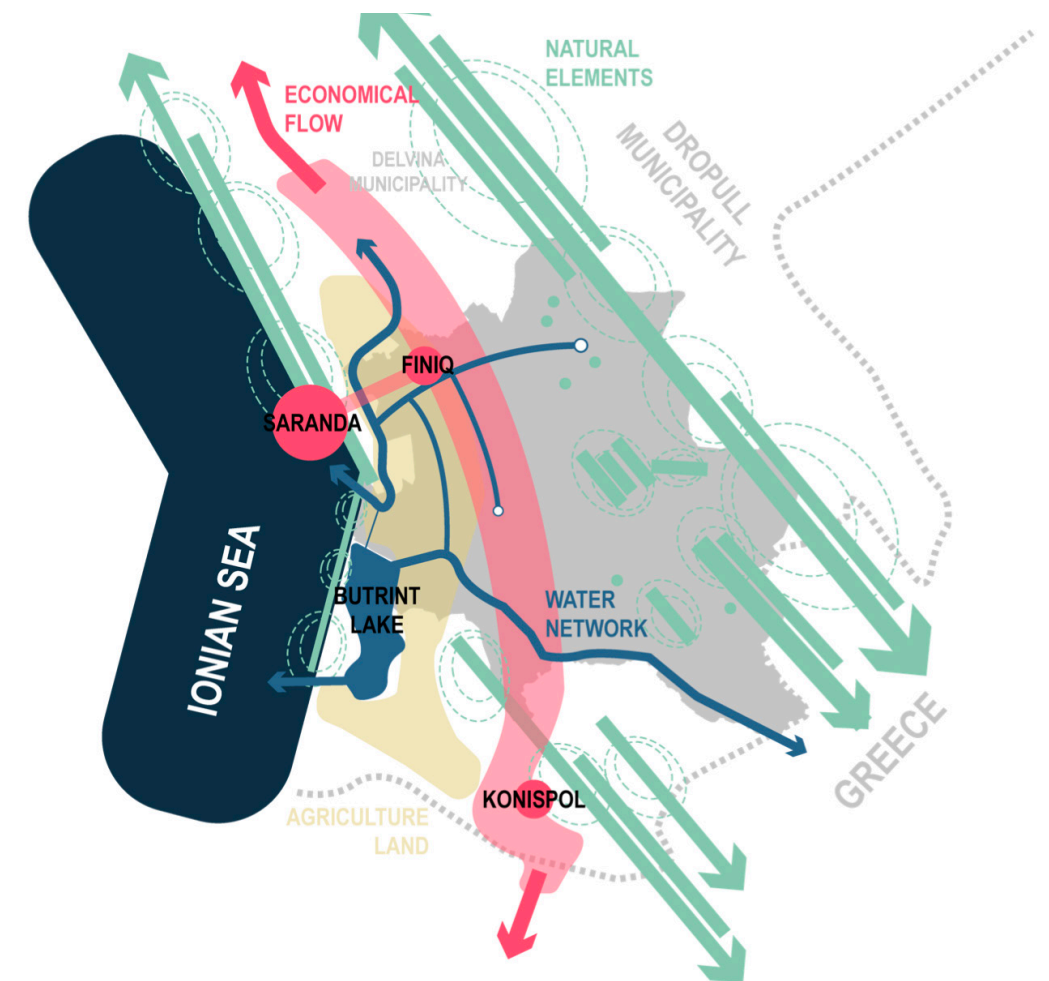
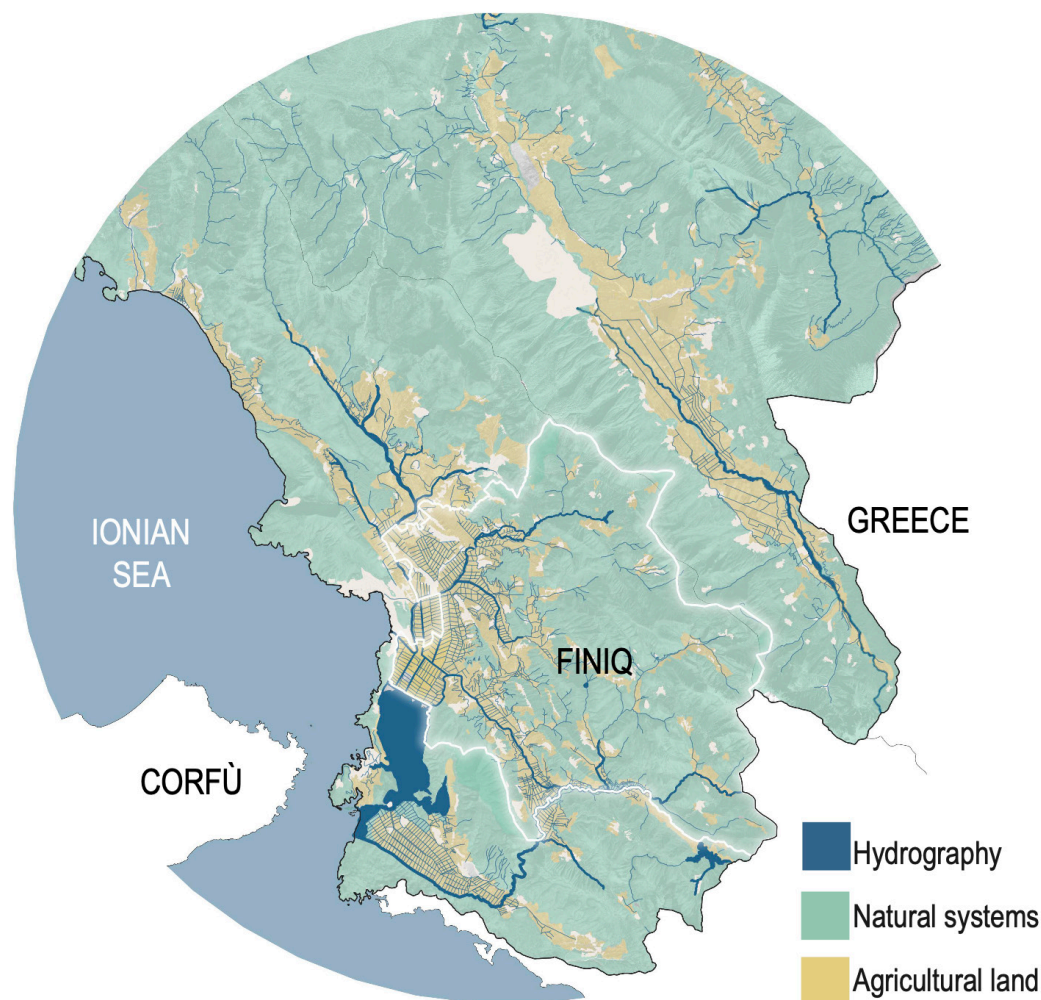


Fig1 / Geographic Position of Finiq Municipality  
source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Françeska Korançe

Fig 2 / Geographic Position of Finiq Municipality  
source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Françeska Korançe

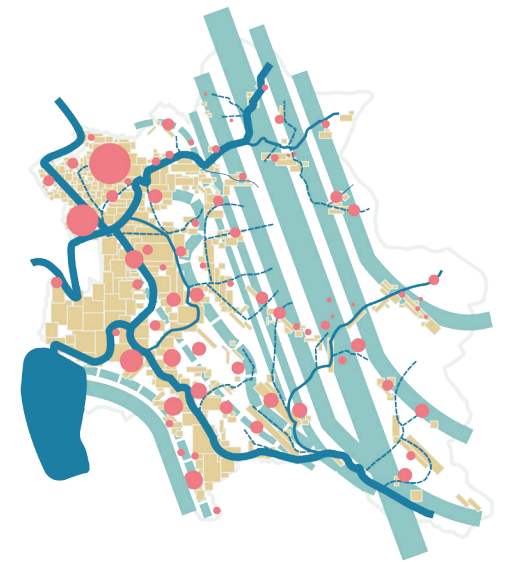


Fig3 / Illustrations of Finiq Municipality in the territorial dimensions of Identity  
source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Françeska Korançe

using eco-friendly practices.

A special thematic area in the context of Finiq Municipality, is the Cross Borders. We find two kinds of borders in Finiq Municipality, on one hand, we have an internal political border on the south-west, and on the other hand, we have a national border on the south-east side. The internal political border divides Finiq from the protected area of Butrint Lake, but from an ecological perspective every river of Finiq Municipality is connected with it, and the drainage and irrigation systems of the agricultural land are also connected with it. The international border divides Albania from Greece. This area is characterized by a rich natural landscape made of high mountains, wielding high potential for developing cross border adventure tourism through creating touristic itineraries up in the mountains.

**Isolation:** In the Municipality of Finiq we identified two types of isolation. From an ecological point of view, we have the isolation of the natural habitats. From west to east, there is a discontinuity of the natural habitats because the expansion of agricultural and urban land. Creating ecological corridors is an important step to build more sustainable environmental systems, which communicate with each other in a balanced way. The second type of isolation that was identified is the isolation of the small villages, especially those situated up in the mountains, in the eastern part of the municipality. Those settlements are only connected with the main roads in the municipality, not connected with each other. By using

natural pathways, it is possible to change this situation for the better. Through using alternative ways of transportation, which are more suited for harsh terrains like horses, mules, mountain bikes, motorcycle, etc, it is possible to connect villages and natural monuments together, which have a maximum distance of one day from each other. This network of natural itineraries can be a touristic asset for those areas.

**Shrinking:** From an ecological point of view, pollution can be seen as a contributor to the problem of shrinking afflicting the Municipality of Finiq. There is no available data on the quantity of pollution produced by the polluter on a municipal level. From a generic stand we find a few types of pollution in the municipality. First, we have the pollution produced by the settlements. Most of the villages do not have a system to collect solid waste. From 58 villages only three of them are equipped with a system of waste collection, which is deposited in the landfill located in the village of Bajkaj, located outside the municipality, on the north. Hence, in most cases this kind of waste is thrown in the nearest water body, polluting the river network. Also, we have the absence of a wastewater infrastructure in most settlements. In those cases, usually, every household uses a septic hole, which is not built in an environmentally friendly way. During the rainy season, because of the run-off, the wastewater collected in those septic holes overflows in the river network. Another important environmental hot spot is the landfill located in Bajkaj village,

which deposits some liquid waste in the canals connected with the river networks of Finiq Municipality. Ultimately the rivers go to the plain area where the widest area of agricultural land is located. It is well known that agriculture is a strong source of water pollution because of the use of herbicides and pesticides for the crops, which overflow in the river bodies through the irrigation and derange systems. Finally, all this pollution collected from the hydrologic network of the municipality is deposited in Butrinti Lake and the Ionian Sea. Thus, it is imperative to build an environmental infrastructure to protect the water resources of the municipality.

#### Strategy – FINIQ RIVERSCAPE

In the context of climate change the environmental system can no longer be overlooked. In the business-as-usual scenario, natural resources are abused in favor of new development, urbanization and economical revenue. This unsustainable use of natural resources further degrades the environmental system of a given territory. Today the EU and other international entities have recognized the imminent threat of climate change and the importance of better managing the environment and natural resources<sup>10</sup>.

Finiq Municipality has a rich territory, abundant with water resources. The complex network of rivers and lakes in the Municipality of Finiq connects the whole territory, from the high mountain peaks on the east, to the fields in the

west. Hence, those rivers also collect the pollution of this territory. Rivers and the land that surrounds them are focal points of economic activity and development. They are essential to humans for water supply, agriculture, transport and energy; hold significant importance socially and culturally, and have critically important ecological habitats that sustain biodiversity.

This proposal brings forward the riverscape restoration strategies, to enhance sustainable tourism, natural conservation, agriculture revitalization and environmental infrastructure development for settlements. These strategies aim to reduce problems of isolation, and shrinking and bring forward a new sustainable identity for Finiq Municipality.

The strategy proposes an abacus which collects different design solutions that could be carried out in the different conditions of the landscape. The purpose of this strategic actions catalogue is to give suggestions to enhance the debate between the different stakeholders and communities.

From the analyses, four main thematic areas were identified. By following the Bistrice River, it is possible to illustrate the implementation of Green & Blue Infrastructure in the Municipality of Finiq for each of those areas. In the Natural Area the interventions are more focused on:

- Forestation
- Preservation and protection of natural

10 / See (UN, Department of Economic and Social Affairs, 2024)

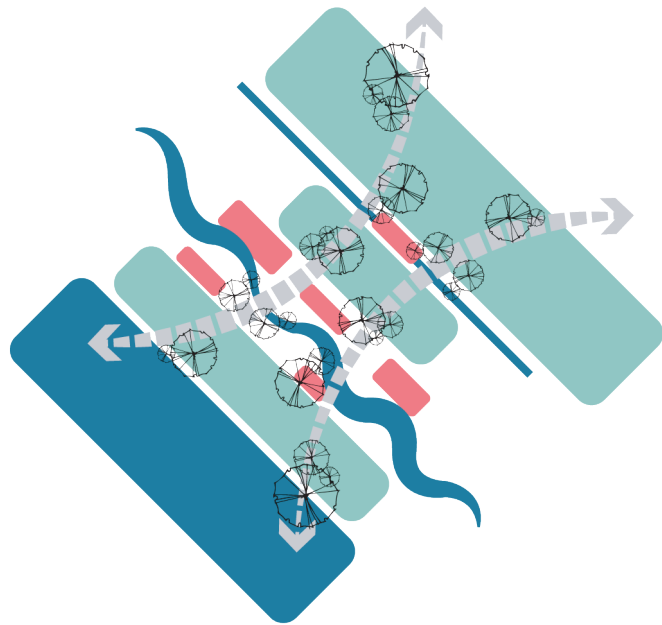


Fig4 / Illustrations of Finiq Municipality in the territorial dimensions of Isolation  
 source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Françeska Korançe

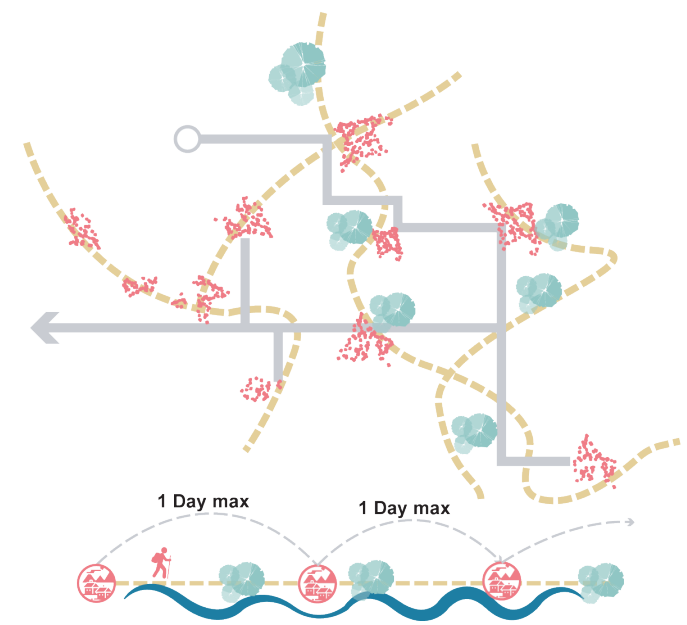


Fig5 / Illustrations of Finiq Municipality in the territorial dimensions of Isolation  
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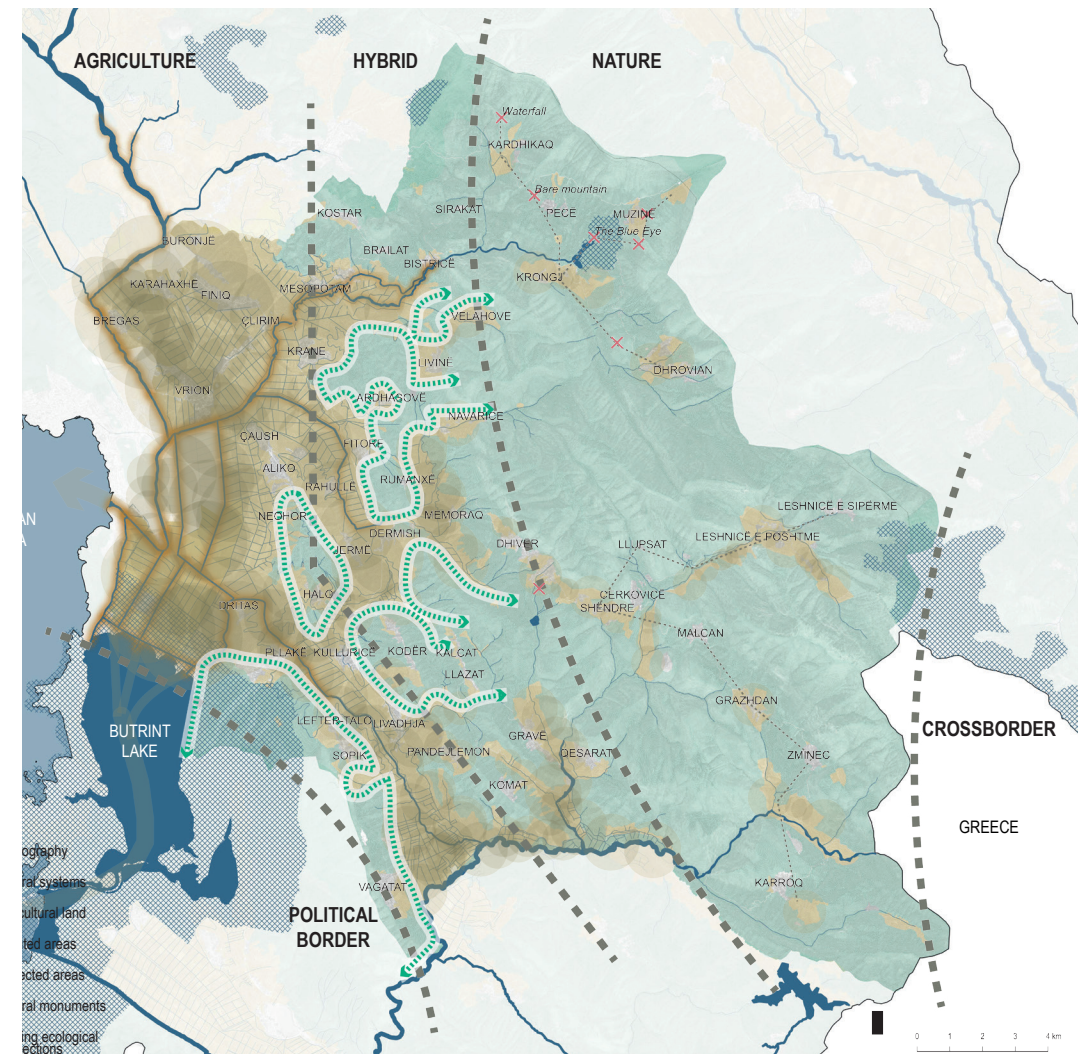
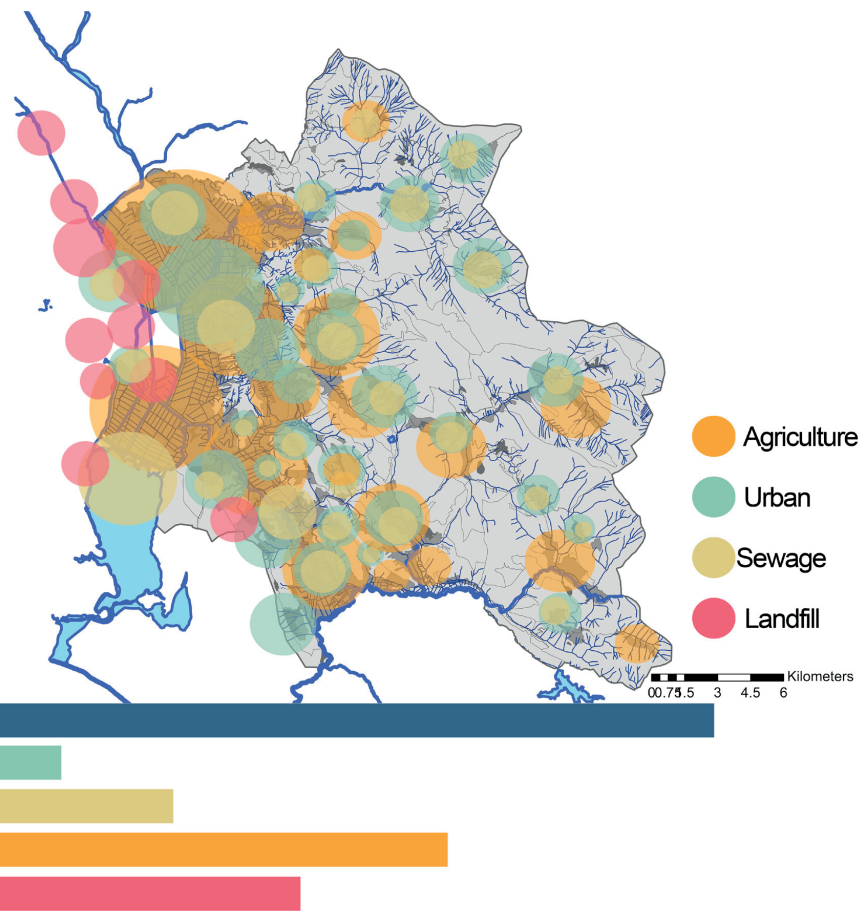


Fig6 / Pollution in the Territorial System, and fragmented Green Corridors affecting the Urban Isolation  
 source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Françeska Korançe

Fig7 / Pollution in the Territorial System, and fragmented Green Corridors affecting the Urban Isolation  
 source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Françeska Korançe

resources

- Enhancing a touristic identity through ecological corridors connecting isolated settlements and underestimated natural monuments

In the Hybrid Area the interventions are more focused on:

- Flood mitigation
- Water depuration
- Expanding public places

In the Agriculture Area the interventions are more focused on:

- Agricultural consortium
- Flood mitigation
- Computation of organic waste

In the Cross Border Area the interventions are more focused on:

- Enhancing connectivity through touristic activities
- Common management of shared natural and environmental ecosystems

### Case Studies

As an application of the strategy, we identified three different case studies with different characteristics and land use. Through the design of these areas we have extrapolated several river strategic actions, divided into settlements, nature and agriculture, which can be applied and used in the territory of the entire municipality.

First Territorial Frame: Settlements, the case of Mesopotam Village

Actual condition - Recurring floods and missing relationships between people with the rivers from an identity point of view. Missing public spaces in the urban areas making the aggregation of the communities difficult. High level of pollution coming from waste and missing productive activities which move away people looking for new business. What we suggest, is a mix of four strategic

actions:

i) Dynamic Riverscape - Actions to restore the dynamic processes of the riverbed. Through the introduction of disturbing elements such as dead wood or aquatic plants, the aim is to differentiate the flow to start sedimentation and erosion processes, making the anthropic river landscape natural and on a human scale.

ii) Urban Forestry - The extensive use of the green cover on the river banks will prevent the pollution reaching the river and mitigate the soil erosion into the river stream. Through this action new natural environments will link the urban settlements with the river increasing the identity of the communities bringing back people to the river.

iii) Expanding Public Spaces - Extension of the public spaces for the communities in the "buffer area" between settlements and rivers, along the riverbanks. These spaces can be accessible when the water level is low and can preserve the villages from flood events, using permeable and natural materials. These spaces are the connection between communities and rivers used for sport facilities, playgrounds, festivals.

iv) Urban Orchard - Mending the river banks between the urban settlements and the river through the integration of urban orchards. It is characterized by different kinds of plantations that serve an aesthetic as well as a productive purpose. Being concentrated near water bodies they allow flooding management.

Agricultural Land case study

Actual condition - Inadequate infrastructure for sustainable agricultural and industrial development even though the land with high productive capacity; malfunction of irrigation and drainage canals; small land parcels; ownership problems and lack of labor. What we suggest, is a mix of three strategic actions: i) Community Agriculture - A farmer community for agriculture production, for example a consortium, where all farmers work and have the same shares of their production and divide profits. An agricultural market in the area that will complete the agricultural economic chain in the agro-processing of agricultural products.

ii) Terrace Farming - Farming in the hills and mountains near settlements, where different villages can bring their production in the farmer market and therefore reduce the isolation. Revitalize sage and mountain tea agriculture, for agro-tourism enhancement, such as sage oils production, or mountain tea aroma

experiences.

Infrastructure Improvement - Improvement of irrigation and drainage canals for agricultural lands. Investment on improvement, regeneration, cleaning of drainage channels for irrigated agricultural systems for the growth of agricultural crops.

iii) Riparian Agriculture mixed with Energy Production - Plant trees and mix agriculture with bioremediation plants, which can survive in inundated areas, purifies water and protects the soil from erosion. Diversification of renewables for energy, exploiting winds in the mouth of the river, the favorable solar radiation (about 2700 hours/year) especially in Finiq.

Natural System case study

Actual condition - Deforestation, neglected forest's management, abandoned natural monuments linked to the river system are the major actual conditions that characterize the landscape. The poor knowledge of the landscape increases its underestimation. What we suggest, is a mix of three strategic actions:

Floodable Areas and Dyke Parks - The dike cross-section is graded to be much broader and flatter in order to make it more stable and accommodate various open spaces. The dike blends into the green surroundings and its flood protection function is hardly noticeable. Through this solution the dyke is not only a "wall", but becomes part of the landscape.

Active Landscape - Tree planting in an organized way in order to respond to deforestation. Through the creation of green corridors this action allows the connection of the scattered polarities, mending also the landscape which rises along the two sides of the river. This action allows the increase of the landscape ecology ecosystem.

Touristic Itineraries - Creation of touristic itineraries through the creation of new trails. Remodeling the reinforcement of the river bed becomes practicable again and the basis for natural hydraulic processes is restored. Integration of subsidies such as small bridges and ecological passages of rivers with large stones. The water experience becomes vivid and attractive to the observer, improving the river.

Green Blocks - Integration of resting points and informative panels in order to contemplate the river landscape and increase the orientation around the land and birdwatching points to increase the

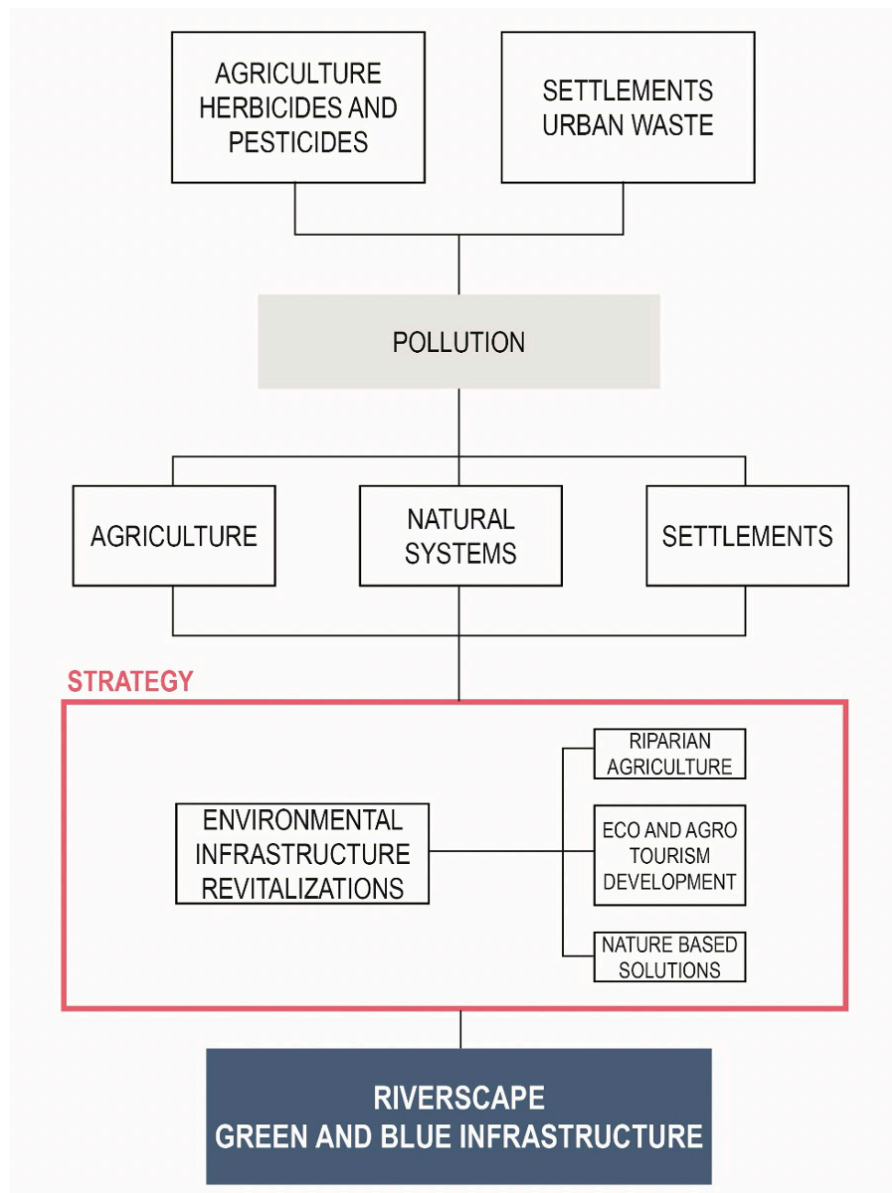


Fig8/ From the analysis to the strategies on territorial issues of Pollution source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Frančeska Koranč

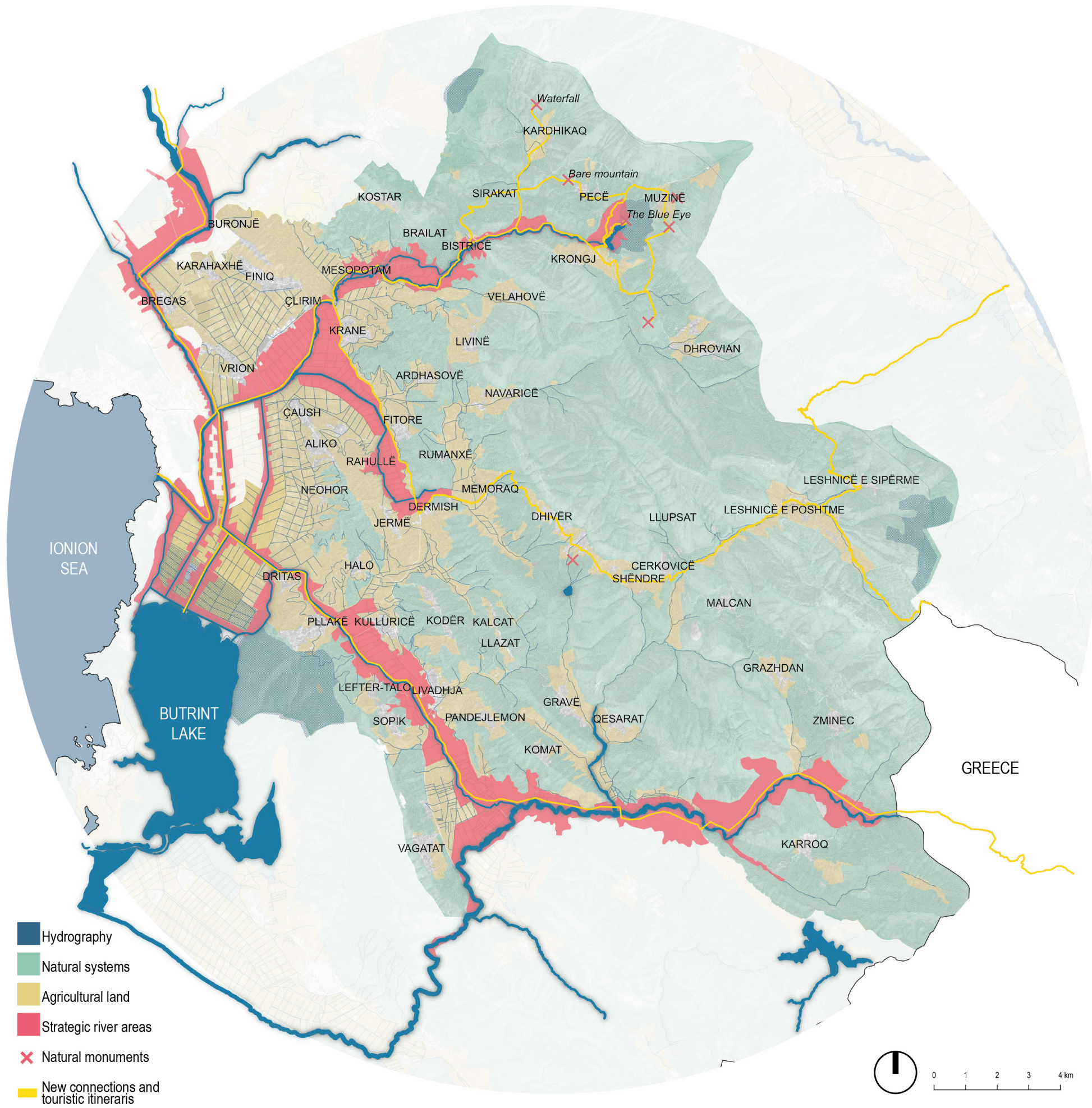
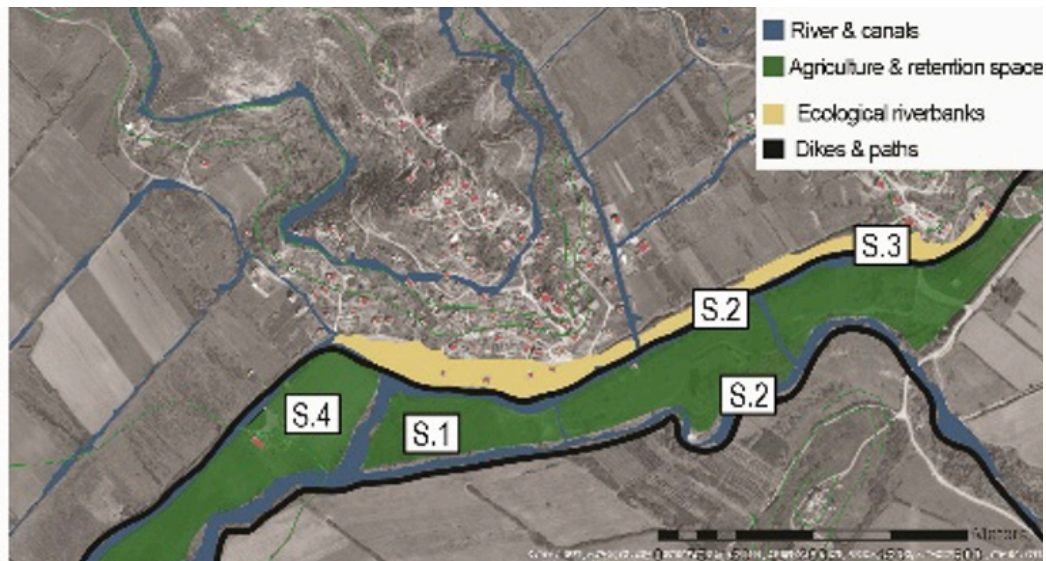


Fig9 / Identification of the territorial strategy on the Finiq Map  
 source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Françeska Korançe

## 01 - Mesopotam Case Study



## 02 - Agriculture Case Study



## 03 - Nature Case Study

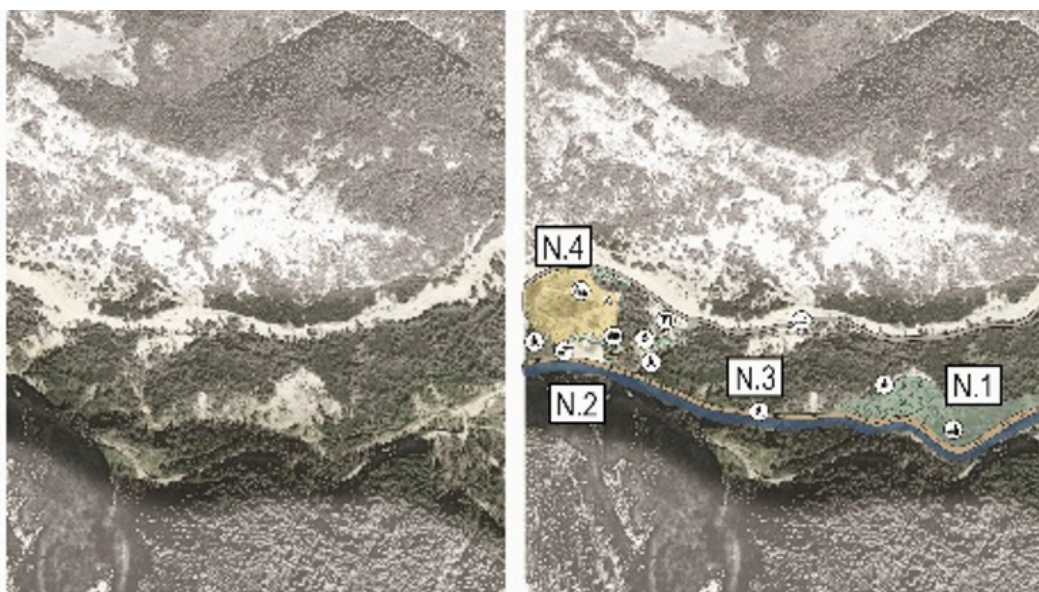


Fig10 / Areas we have extrapolated several river strategic actions  
source / Beatrice Magagnoli, Rea Muka, Ruba Alomary, Dario Rizzi, Fabio Planu, Françeska Korançe

relation with the surrounding territory. To enhance the landscape many resting points are added to let people increase their connection with the river by looking at different scenarios from different observation points.

### Conclusion

The Finiq Riverscape strategy is the first chapter of an environmental restoration which aims to enhance the environmental ecosystems starting from the rivers and spreading it through the territory of Finiq Municipality. By applying punctual project actions throughout the entire territory, together with waste management, new urban water sewage system and conscious agricultural techniques, can reduce and eliminate soil and water pollution by bringing new nature and increasing the quality of life of the citizens of the Finiq Municipality.

In conclusion, the strategic actions proposed for addressing the challenges in each case study area offer comprehensive solutions tailored to the specific needs and conditions present.

For the Mesopotam Village case study, characterized by recurring floods and a lack of community connection with the rivers, a mix of four strategic actions is recommended. These actions include interventions to restore dynamic river processes, promote urban forestry, expand public spaces, and integrate urban orchards, all aimed at enhancing the village's identity and resilience to flood events.

In the Agricultural Land case study, where inadequate infrastructure hinders sustainable agricultural and industrial development, a mix of three strategic actions is proposed. These actions involve fostering community agriculture, implementing terrace farming, and improving infrastructure such as irrigation and drainage canals, to optimize agricultural productivity and economic viability.

For the Natural System case study, facing issues of deforestation and neglected forest management, a mix of three strategic actions is suggested. These actions include creating floodable areas and dyke parks, promoting an active landscape through tree planting and green corridors, and developing touristic itineraries to enhance the landscape's ecological and recreational value.

Overall, these strategic actions encompass a holistic approach that addresses the diverse challenges faced by each case study area, aiming to foster

sustainable development, enhance environmental resilience, and strengthen community connections with the natural surroundings.

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